Paper No. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MATTHEW J. CONWAY,
STEPHEN A. JACQUOT, DENNIS R. PROFFITT
and GEORGE G. ROBERTSON

Appeal No. 2004-2005
Application No. 09/335,640

HEARD: MARCH 8, 2005[1]

Before HAIRSTON, BARRETT, and LEVY, Administrative Patent Judges.

LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-9, 11, 12, 14, 16-22, 24, 33-40, 42, 44, 46-51, 53, 54, 56 and 58-63. Claims 10, 13, 15, 23, 25-32, 41, 43, 45, 52, 55 and 57 have been objected to by the examiner.

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[1] Telephonic hearing.

BACKGROUND

Appellants' invention relates to data structure for providing a user interface to objects, wherein the user interface exploits spatial memory and visually indicates at least one object parameter. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced as follows:

1. A man-machine interface method for permitting a user to act on thumbnails, each thumbnail representing an associated object containing information, for use with a machine having a video display device and a user input device, the man-machine interface method comprising:

a) generating a three-dimensional environment, having a depth, to be rendered on the video display device;

b) determining a two-dimensional location and a depth of each of the thumbnails in the three-dimensional environment, wherein, for each of the thumbnails, the depth is a function of at least one parameter of the object associated with the thumbnail; and

c) generating the thumbnails within the three-dimensional environment, at the determined two-dimensional locations and depths, to be rendered on the video display device.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Joskowicz et al. (Joskowicz)	5,669,006	Sep. 16, 1997
Baldwin	5,701,444	Dec. 23, 1997
Robertson et al. (Robertson)	6,166,738	Dec. 26, 2000 (filed Sept. 14, 1998)

Claims 1-3, 5-9, 11, 12, 14, 16-22, 24, 33-40, 42, 44, 46-51, 53, 54, 56 and 58-63 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Robertson and Joskowicz.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Robertson, Joskowicz and Baldwin.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellants regarding the above-noted rejections, we make reference to the examiner's answer (Paper No. 18, mailed August 26, 2003) for the examiner's complete reasoning in support of the rejections, and to appellants' brief (Paper No. 17, filed June 12, 2003) and reply brief (Paper No. 22, filed January 27, 2004) for appellants' arguments thereagainst. Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered. See 37 CFR § 41.37(c)(1)(vii).

OPINION

In reaching our decision in this appeal, we have carefully considered the subject matter on appeal, the rejections advanced by the examiner, and the evidence of obviousness relied upon by

the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, appellants' arguments set forth in the briefs along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

Upon consideration of the record before us, we reverse, essentially for the reasons set forth by appellants, and add the following comments.

We begin with the rejection of claims 1-3, 5-9, 11, 12, 14, 16-22, 24, 33-40, 42, 44, 46-51, 53, 54, 56 and 58-63 under 35 U.S.C. § 103(a) as being unpatentable over the teachings of Robertson and Joskowicz. We turn first to claim 1. In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must

stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole. See id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

The examiner's position (answer, page 5) is that "[w]hile Robertson patent discloses a perspective view facility 252 to determine the thumbnail object location or position information

(col. 17, lines 29-61), the location or position information of Robertson's does not explicitly show further information about the object, such as the depth parameter of the object thumbnail on the three dimensional surface is not explicitly shown." To overcome this deficiency of Robertson, the examiner turns to Joskowicz for a teaching of a relationship value (parameter) between episodes, wherein each episode is represented as a thumbnail.

Appellants assert (brief, page 5) that claim 1 recites, in part, that "for each of the thumbnails, the depth is a function of at least one parameter of the object associated with the thumbnail" (bold italics and underlining omitted). Appellants assert that neither reference, alone or in combination, teach or suggest this limitation, because the cited references do not associate depth of a rendered thumbnail with at least one object associated with the thumbnail. It is argued (id.) that Joskowicz simply teaches rendering of icons (including Z-axis based rendering) as a function of the icons themselves (e.g., size, area, predefined constraints relating to spacing of the icons) but not as a function of at least one parameter of an object associated with the displayed thumbnail as defined in the claimed

invention. Appellants assert (answer, page 6) that Joskowicz merely suggests Z-ordering thumbnails by surface area so that larger thumbnails do not obscure smaller thumbnails; i.e., Joskowicz teaches rendering an icon as a parameter associated directly with the icon (the depth of an icon is directly related to the physical size of the icon (height times width). Appellants further assert (id.) that both Robertson and Joskowicz are concerned with rendering of thumbnails/icons so as to optimize utilization of valuable screen real estate via three-dimensional rendering of the thumbnails, whereas neither reference teaches or suggests that the placement of the thumbnails in three-dimensional space is also a function of at least one parameter of an object associated with the rendered thumbnail.

The examiner responds (answer, pages 5 and 6) it would have been obvious to incorporate the depth information of Joskowicz with Robertson's three-dimensional environment "because the incorporation will enable Robertson to display or edit the values of the thumbnail associated with the displayed object (such as the document shown in Figs 8A-18). Thus, the combination of the Robertson reference and Joskowicz reference would result in the

invention recited in claims 1 and 47." The examiner additionally argues (answer, page 16) that "Joskowicz also teaches depth associated with parameter such as priority or arrangement of an object (episode) associated with thumbnail (fig.1)." Moreover, the examiner asserts (answer, page 17) that Joskowicz defines the Z-ordering of episodes according to their relationship, or according to their arrangement or priority in the Z-ordering list, and adds that "[t]hus, combining the ('738) with ('006) results in determining the depth as a function of parameter of the object associated with the thumbnail." The examiner further asserts (answer, page 18) that "[i]n contrast to Appellant [sic] argument [,] Robertson and Joskowicz teach the depth as a function of parameter (such as priority or arrangement of episodes) of the object associated with the thumbnail)."

In the reply brief, appellants add (page 6) that "Joskowicz <u>et al.</u> merely suggests 'z-ordering' thumbnails by <u>surface areas</u> so that larger thumbnails do not obscure smaller thumbnails", and (<u>id.</u>) "teaches rendering an icon as a function of <u>a parameter associated directly with the icon, i.e.</u> the depth of the icon is directly related to the physical size of the icon (height times width)" (bold highlighting omitted).

From our review of Joskowicz, we find that Joskowicz is drawn to a method for automatically obtaining spatial layout for multimedia presentations, and more particularly (col. 1, lines 8-10) to automatically generating a spatial layout of the visible segments on a computer display screen. Joskowicz discloses (col. 1, lines 13-17) that multimedia documents such as encyclopedias have become popular since this type of media is capable of storing a large amount of data, such as text, graphics, action video, sound, etc. Joskowicz explains that the user of a multimedia document typically presents or receives multimedia information called fragments, segments or objects, which Joskowicz hereinafter refers to as episodes. These episodes include audio and video clips, musical recordings, speech, typed text, still pictures, animation, etc. (col. 1, lines 18-26). Multimedia authoring is a process of ordering multimedia objects such as texts, graphics, sounds and videos in time and space. A set of multimedia objects or episodes, which have been ordered, is referred to as a story. Ordering the objects with respect to a story is done in a temporal dimension and in the spatial dimension. The invention is related to the problem of obtaining a spatial layout (col. 1, lines 27-34). In addition, a set of

objects in a multimedia story that appear simultaneously is called a clique (col. 1, lines 37 and 38). With a large number of objects having a complicated spatial relationship, it becomes an involved and tedious process to find a suitable spatial design (col. 1, lines 41-44).

According to the invention, a spatial design for a multimedia clique is defined in three dimensions, where the third dimension defines the depth of overlapping objects (col. 1, lines 58-62). The locations of the associated episodes and their respective depths on the screen are found. This process involves resolving space requirements between the several episodes in the clique according to a defined set of constraints (col. 1, lines 62-66). If a resolution can be reached which provides a consistent layout, the layout is displayed. The user is then given the opportunity to change the predefined set of constraints, resulting in the display of the layout with the changed set of constraints. If the layout is still not satisfactory, the user can change the sizes and locations of the individual episodes in the clique (col. 1, line 66 through col. 2, line 6). When the spatial design is finally accepted by the user, the process outputs the spatial design for the clique (col.

2, lines 9 and 10). Given a series of cliques that constitute an entire multimedia story, we use a technique of constraint propagation, where an object in one clique may be displayed with other objects in a succeeding clique. Rather than moving that object around, the option is provided to fix the position of the object and let the other objects move around the fixed one (col. 2, lines 11-17).

In practicing the invention, multimedia objects in a story are automatically arranged in a spatial layout, but not all objects are visible because an audio episode or time delay have no screen real estate. These invisible objects are ignored, and only visible objects are considered in the spatial design of the multimedia presentation. For visual episodes, the location and space they occupy on the screen may vary. In the case where there are overlaps between objects on the display screen, finding a spatial design for a multimedia clique can be characterized as a three dimensional problem in XYZ space, where Z is the depth of overlapping objects (col. 3, lines 21-36). To obtain a screen layout for a clique, we find the locations of the episodes and their depth. Let E denote the episodes in a multimedia clique C. Assume that each of the visual episodes occupy a rectangular region on the screen, and that each episode is associated with an

optimal area and aspect ratio. The area is defined by its width and height, and the aspect ratio is the ratio of its width to its height. Assume that for each episode, a set of constraints such as minimum area and prespecified range of aspect ratios, are given. Furthermore, relative placement constraints may also be given for the episodes. An example of this is illustrated in figure 2, below,

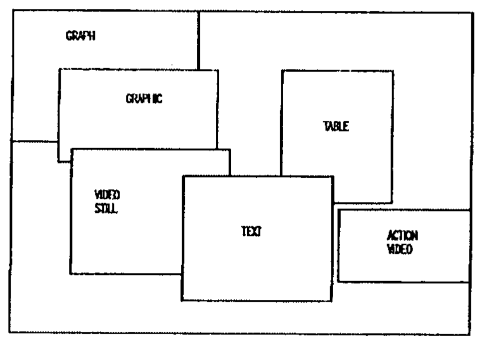

FIG.2

where a plurality of episodes comprising a clique are shown, with some episodes overlapping (col. 3, lines 37-54). Joskowicz further discloses (col. 3, lines 55-58) that "[g]iven the dimensions of the display screen, the task is to find the positions and dimensions of the rectangles for all the episodes in a clique such that they all fit on the screen and satisfy the

constraints." The spatial layout process consists of: (1) obtaining initial placements for the episodes in the clique, and (2) negotiating space requirements between them. The initial layout can be refined by the author by resizing or moving the corresponding rectangles (col. 3, lines 58-65). With an overlap on the screen, the depths of the overlapping episodes becomes important. Z-ordering defines the relative depths for the overlapping episodes as they appear on the display screen.

The Z-list may be shuffled according to the following constraints. Each constraint is associated with a priority, with 1 being the highest priority (col. 4, lines 17-22) and (col. 4, lines 23-31) wherein it is disclosed that "1. No episode shall be hidden completely behind another. 2. A button should always be fully visible. A button is a defined area within the episode that a user can select and thereby invoke a process linked to that area. 3. A portion of a text may not be hidden behind another episode. 4. An episode that takes up a larger area may be behind a smaller one." Conflicts among Z-order constraints are resolved according to their priorities: e.g., if a button and a text episode overlap, The button should still be fully visible (col. 4, lines 32-34).

In the process according to the invention, the user is first given the opportunity to change or update the constraints (decision block 302 in figure 3). However, the user will most likely not change the constraints initially. Then, the system determines the layout (col. 4, lines 33-44). If the layout is not consistent, the Z-list can be modified by the author. For a given clique, we let forefront (c) denote an episode that is in the forefront of all of the episodes in the story, and we assign it the greatest depth from the point of viewing from front to back. An algorithm reorders the Z-list whenever an episode becomes the new forefront (col. 4, lines 52-56). Thus, just by touching an episode on the screen, it becomes the current forefront (col. 4, lines 66 and 67). Although the positions of episodes are used as depth indices at the time of presentation, the positions of episodes are used only to determine the depth relationships between episodes of a clique (col. 5, lines 1-4).

Joskowicz further discloses (col. 5, lines 11-15) that in the invention, there are two types of constraints, base and relative. Base relates to constraints concerning size (area) and relative relates to spacing rules specified by the author. In placement

on the screen, objects are spread on the screen by maximizing the sum of the distances between pairs (col. 6, lines 65-67). For a given clique, the goal is to automatically obtain a layout which is legal (the layout satisfies all the base constraints (size), Z-order constraints (depth), and the relative spacing constraints (col. 6, lines 9-12). If a consistent layout is not found, the author may specify a new set of constraints and repeat the design process until a desirable design is found (col. 7, lines 13-16).

With respect to resolution of Z-order constraints, initially, the Z-list is empty, and the objects are sorted by decreasing order of area; i.e., the larger area objects are displayed at a greater depth than smaller area objects so as not to occlude a smaller area object (col. 7, lines 24-31). To change the Z-order, the user chooses an object to bring it to the top of the display, by selecting the object with a pointing device, such as a mouse. The Z-list is then reordered (col. 7, lines 47-54).

The invention described so far relates to designing a screen layout for a given clique. For a series of cliques, we use a series of properties called constraint propagation. If an object is placed at a location (x,y) and has dimensions (w,h) the same object may be displayed along with another group after some time.

When this happens, rather than moving the object around, we may fix the location and dimensions and let the other objects move around the fixed object. This is what is meant by constraint propagation (col. 7, line 59 through col. 8, line 3).

From the disclosure of Joskowicz, it is clear that the reference does not associate depth with at least one parameter of an object associated with an episode or thumbnail, but rather renders the episodes as a function of the size and aspect ratio of the episode itself, as well as the relative spacing between episodes, all as the presentation of a spatial layout. As Joskowicz is directed to providing a spatial layout where the episodes are properly spaced so the larger episodes do not occlude the viewing of smaller episodes, Joskowicz fails to teach or suggest that for each of the thumbnails (see figure 2) the depth is a function of at least one parameter of the object associated with the thumbnail, as recited in claim 1.

Thus, even if we combined the teachings of Robertson and Joskowicz, as advanced by the examiner, the combined teachings of the references falls short of teaching or suggesting all of the limitations of claim 1.

In addition, we do not agree with the examiner's motivation for combining the teachings of the references. The reasoning provided by the examiner (answer, page 6) is not a motivation at all, but rather is a statement that upon making the modification, the resultant structure will result in the claimed invention, instead of providing a line of reasoning as to why an artisan would have been motivated to combine the teachings of the references.

We are not persuaded by the examiner's assertion (answer, page 18) that "[i]n contrast to Appellant[s'] argument Robertson and Joskowicz teach the depth as a function of parameter (such as priority or arrangement of episodes of the object associated with the thumbnail." As discussed, supra, in Joskowicz, priority refers to constraints relating to episodes not being completely hidden by another episode, and that buttons should not be hidden. This refers to the size, aspect ratio and relative spacing between the episodes themselves, and not to depth as a function of at least one parameter of the object associated with the episode or thumbnail.

From all of the above, we find that the examiner has failed to establish a prima facie case of obviousness of claim 1.

Accordingly, the rejection of claim 1 under 35 U.S.C. § 103(a) is reversed. As each of the other independent claims, i.e., claims 34, 61 and 62 contain the same or similar language, the rejection of independent claims 34, 61 and 62 is reversed, along with claims 2, 3, 5-9, 11, 12, 14, 16-22, 24, 33, 35-40, 42, 44, 46-51, 53, 54, 56, 58-60 and 63, which depend therefrom.

We turn next to the rejection of claim 4 as being unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Robertson , Joskowicz and Baldwin. We reverse the rejection of claim 4 as the examiner has failed to show how Baldwin makes up for the deficiencies of Robertson and Joskowicz.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-9, 11, 12, 14, 16-22, 24, 33-40, 42, 44, 46-51, 53, 54, 56 and 58-63 under 35 U.S.C. § 103(a) is reversed.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)	
LEE E. BARRETT Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
STUART S. LEVY Administrative Patent Judge	)	

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